

CLAIMS

1. A method for machining a workpiece by moving a working tool and the workpiece relative to each other, said method comprising steps of:

5                   generating a positional command based on a predetermined NC machining program;

                  carrying out the machining operation for the workpiece in accordance with the generated positional command;

10                  interrupting the machining operation for the workpiece;

                  detecting a wear amount of the working tool upon the interruption of the machining operation for the workpiece; and

15                  setting a tool edge position of the working tool upon the restart of the machining operation for the workpiece to coincide with the tool edge position of the working tool upon the interruption of the machining operation for the workpiece, based on the  
20                  detected wear amount of the working tool, and restarting the machining operation for the workpiece from the set tool edge position of the working tool.

2. The method according to claim 1, further comprising a step of accumulating the detected wear  
25                  amount of the working tool whenever the machining operation for the workpiece is interrupted, wherein said setting and restarting steps are carried out based on the accumulated wear amount of the working tool.

3. The method according to claim 1, wherein said  
30                  detecting step comprises steps of measuring a tool edge position of the working tool and calculating the wear amount of the working tool.

4. A method for machining a workpiece by moving a working tool and the workpiece relative to each other,  
35                  said method comprising steps of:

                  generating a positional command based on a predetermined NC machining program;

carrying out the machining operation for the workpiece in accordance with the generated positional command;

5 sequentially estimating a wear amount of the working tool during the machining of the workpiece;

sequentially correcting the tool edge position of the working tool so as to compensate for the estimated wear amount of the working tool;

10 interrupting the machining operation for the workpiece;

detecting the wear amount of the working tool upon the interruption of the machining operation for the workpiece;

15 accumulating a difference between the detected wear amount of the working tool and the estimated wear amount of the working tool; and

20 setting a tool edge position of the working tool upon the restart of the machining operation to coincide with the tool edge position of the working tool upon the interruption of the machining operation for the workpiece, based on the accumulated wear amount of the working tool, and restarting the machining operation for the workpiece from the set tool edge position of the working tool.

25 5. The method according to claim 4, wherein said detecting step comprises steps of measuring a tool edge position of the working tool and calculating the wear amount of the working tool.

30 6. The method according to claim 4, wherein said estimating step comprises a step of estimating a wear amount of the working tool from a cutting length and a predetermined wear amount per unit cutting length.

35 7. The method according to claim 4, wherein said estimating step comprises a step of estimating the wear amount from one or both of a cutting condition and a machining load.

8. The method according to claim 4, wherein said

estimating step comprises a step of estimating the wear amount from a cutting length and a predetermined wear amount per unit cutting length as well as one or both of a cutting condition and a machining load.

5           9. The method according to claim 4, wherein said estimating step comprises steps of measuring the tool edge position of the working tool, calculating the wear amount of the working tool, comparing the calculated wear amount of the working tool with the estimated wear amount  
10 of the working tool, and sequentially correcting the wear amount per unit cutting length used for the estimation so that the calculated wear amount and the estimated wear amount coincide with each other.

15           10. A machine tool for machining a workpiece by moving a working tool and the workpiece relative to each other, said machine tool having a function for correcting the wear of the working tool, said machine tool comprising:

20                 a positional command generating means for generating a positional command based on a predetermined NC machining program and moving the working tool and the workpiece relative to each other in accordance with the generated positional command;

25                 a tool wear amount detection means for detecting a wear amount of the working tool upon the interruption of the machining operation for the workpiece; and

30                 a tool edge position control means for setting a tool edge position of the working tool upon the restart of the machining operation for the workpiece to coincide with the tool edge position of the working tool upon the interruption of the machining operation for the workpiece, based on the wear amount of the working tool detected by said tool wear amount detection means.

35           11. The machine tool according to claim 10, further comprising a wear amount accumulation means for accumulating the wear amount of the working tool detected

by said tool wear amount detection means whenever the machining operation for the workpiece is interrupted, wherein said tool edge position control means sets the tool edge position of the working tool upon the restart  
5 of the machining operation for the workpiece to coincide with the tool edge position of the working tool upon the interruption of the machining operation for the workpiece, based on the accumulated wear amount of the working tool calculated by said wear amount accumulation  
10 means, and restarts the machining operation for the workpiece from the set tool edge position of the working tool.

12. A machine tool for machining a workpiece by moving a working tool and the workpiece relative to each  
15 other, said machine tool having a function for correcting the wear of the working tool, said machine tool comprising:

a positional command generating means for generating a positional command based on a predetermined  
20 NC machining program and moving the working tool and the workpiece relative to each other in accordance with the generated positional command;

a tool wear amount detection means for detecting a wear amount of the working tool upon the  
25 interruption of the machining operation for the workpiece;

a tool wear amount estimation means for sequentially estimating a wear amount of the working tool during the machining of the workpiece;

30 a tool edge position correction means for sequentially correcting the tool edge position of the working tool so as to compensate for the wear amount of the working tool estimated by said tool wear amount estimation means;

35 a wear amount accumulation means for accumulating a difference between the detected wear amount of the working tool and the estimated wear amount

of the working tool; and

a tool edge position control means for setting a tool edge position of the working tool upon the restart of the machining operation for the workpiece to coincide with the tool edge position of the work tool upon the interruption of the machining operation for the workpiece, based on the accumulated wear amount of the working tool.

13. The machine tool according to claim 12, further comprising a wear coefficient correction means for comparing the wear amount of the working tool detected by said tool wear amount detection means with the wear amount of the working tool estimated by said tool wear amount estimation means and sequentially correcting a wear amount per unit cutting length used for the estimation so that the detected wear amount and the estimated wear amount coincide with each other.